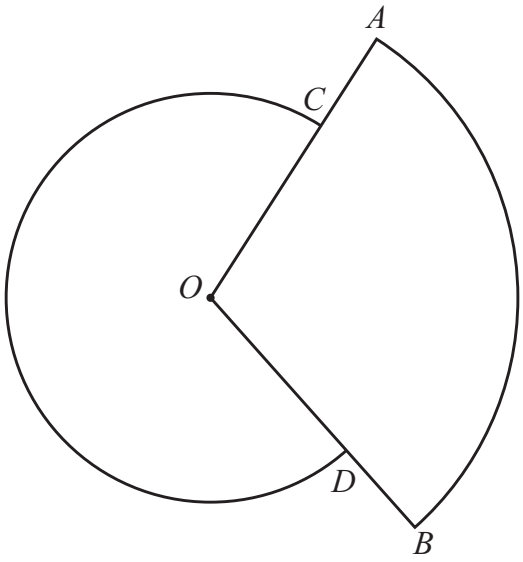
1. Question | 4024 May-June 2025 P1 V2 Q23

23



NOT TO SCALE

OAB is a minor sector of a circle, centre *O*.
OCD is a major sector of a different circle, centre *O*.

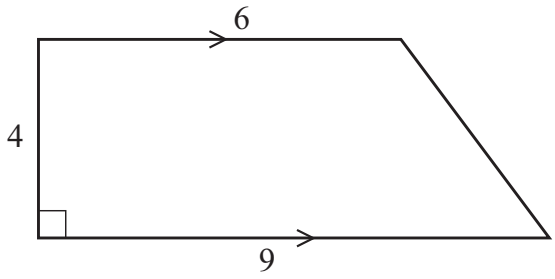
OCA and *ODB* are straight lines.
OC = 6 cm and *OA* = 9 cm.
The length of the minor arc *AB* is 5π cm.

Work out the area of the major sector *OCD*.
Give your answer in terms of π.

..... cm^2 [5]

2. Question | 4024 May-June 2025 P1 V3 Q13

13 The diagram shows a trapezium with lengths in centimetres.



NOT TO SCALE

(a) Work out the area of the trapezium.

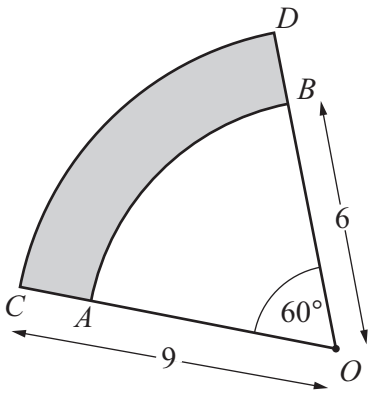
..... cm^2 [2]

(b) Work out the perimeter of the trapezium.

..... cm [3]

3. Question | 4024 May-June 2025 P1 V3 Q20

20



NOT TO SCALE

OAB and *OCD* are sectors of circles, each with centre *O* and angle 60°.

Sector *OAB* has radius 6 cm.
Sector *OCD* has radius 9 cm.

(a) The perimeter of the shaded region is $(a\pi + b)$ cm.

Find the value of *a* and the value of *b*.

a = ...

b = ...
[3]

(b) Calculate the area of the shaded region.
Give your answer in its simplest form in terms of π.

..... cm^2 [3]

4. Question | 4024 Oct-Nov 2025 P1 V1 Q10

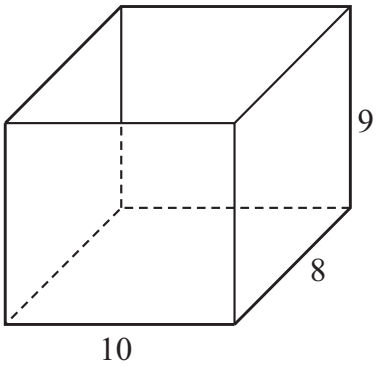
10 A circle has diameter 12 cm.

Find the area of the circle.
Give your answer in terms of π.

..... cm^2 [2]

5. Question | 4024 Oct-Nov 2025 P1 V1 Q12

12



NOT TO SCALE

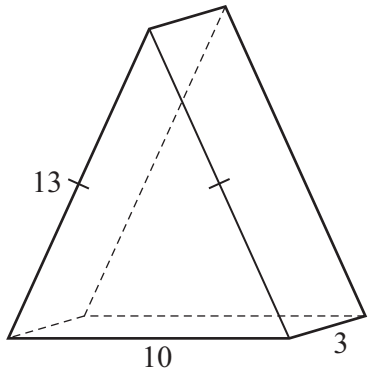
The diagram shows an empty container.
The container is a cuboid of width 10 cm, length 8 cm and height 9 cm.
Water drips into the container at a rate of 6 millilitres per second.

Find the time, in seconds, it takes to fill the container.

..... seconds [3]

6. Question | 4024 Oct-Nov 2025 P1 V1 Q17

17



NOT TO SCALE

The diagram shows a prism.
The cross-section of the prism is an isosceles triangle with sides 13 cm, 13 cm and base 10 cm.
The length of the prism is 3 cm.

(a) Show that the volume of the prism is 180 cm^3.

[4]

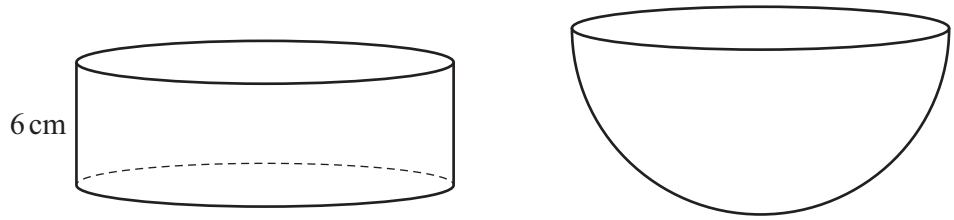
(b) A mathematically similar prism has a volume of 1440 cm^3.
The cross-section of this prism is an isosceles triangle with base x cm.

Calculate the value of x.

$x =$ ..... [3]

7. Question | 4024 Oct-Nov 2025 P1 V2 Q18

18 The diagram shows a solid cylinder and a solid hemisphere.



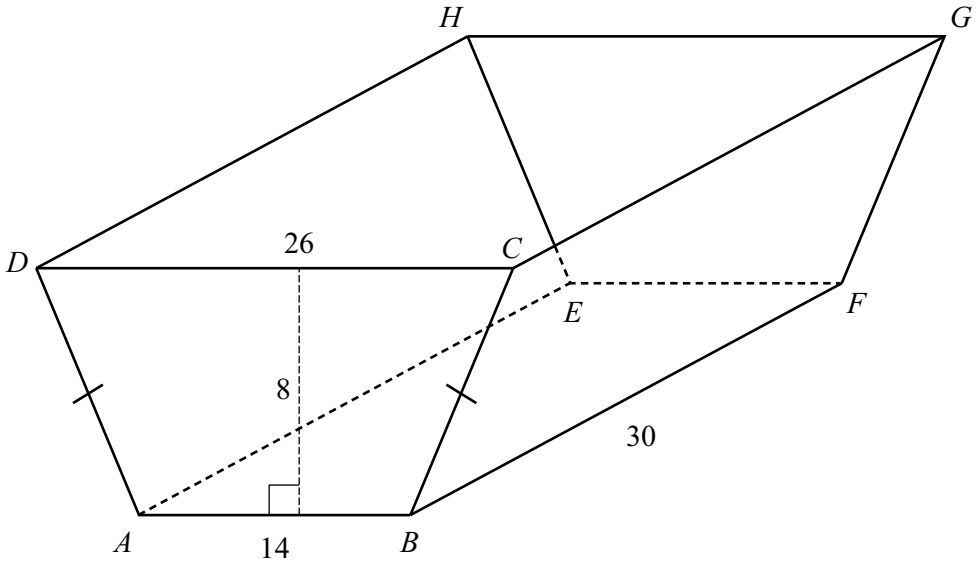
NOT TO SCALE

The radius of the cylinder is equal to the radius of the hemisphere.
The volume of the cylinder is equal to the volume of the hemisphere.
The height of the cylinder is 6 cm.

Calculate the total surface area of the hemisphere.
Give your answer in terms of π.

..... cm^2 [5]

10



The diagram shows a container in the shape of a prism with an open top.
The cross-section of the prism, *ABCD*, is a trapezium.
AB = 14 cm, *CD* = 26 cm and *BF* = 30 cm.
The height of the container is 8 cm.

(a) Calculate the area of trapezium *ABCD*.

..... cm^2 [2]

(b) Calculate the capacity of the container in litres.

..... litres [2]

(c) Calculate the total surface area of the inside of the container.

..... cm^2 [6]

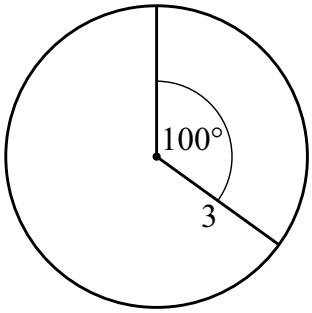
(d) A mathematically similar container has a height of 16 cm.

Calculate the total surface area of the inside of the container with height 16 cm.

..... cm^2 [2]

9. Question | 4024 Specimen 2025 P1 Q22

22



NOT TO SCALE

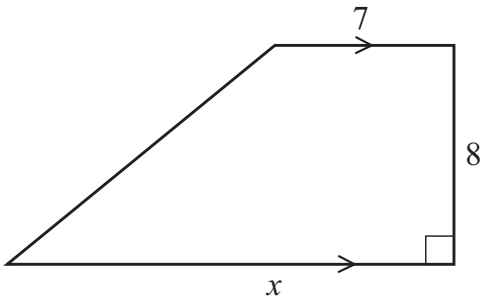
The diagram shows a circle of radius 3 cm.
The minor sector angle is 100°.

Calculate the area of the major sector.
Give your answer in terms of π.

..... cm^2 [3]

10. Question | 4024 May-June 2026 P1 V2 Q7

7 The diagram shows a trapezium.
All the lengths are in centimetres.



NOT TO SCALE

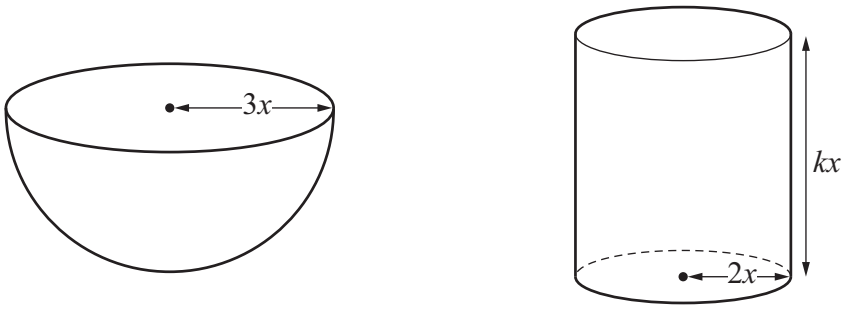
The area of the trapezium is 100 cm^2.

Work out the value of x.

$x =$ ..... [3]

11. Question | 4024 May-June 2026 P1 V2 Q19

19 The diagram shows a solid hemisphere and a solid cylinder.
All the lengths are in centimetres.



NOT TO SCALE

The radius of the hemisphere is $3x$.
The radius of the cylinder is $2x$.
The height of the cylinder is kx.

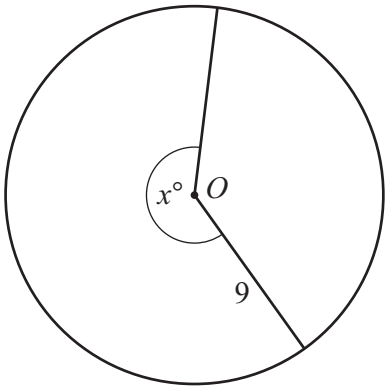
The volume of the hemisphere is equal to the volume of the cylinder.

Work out the total surface area of the cylinder.
Give your answer in the form $a\pi x^2$, where a is an integer.

..... cm^2 [6]

12. Question | 4024 May-June 2026 P1 V3 Q20

20



NOT TO SCALE

The diagram shows a circle with centre O and radius 9 cm.
The length of the minor arc is $\frac{15}{2}\pi$ cm.

Find the value of x.

$x =$ ..... [3]